



PROPOSED FY 2019-2024 STORMWATER CIP CITY COUNCIL BRIEFING

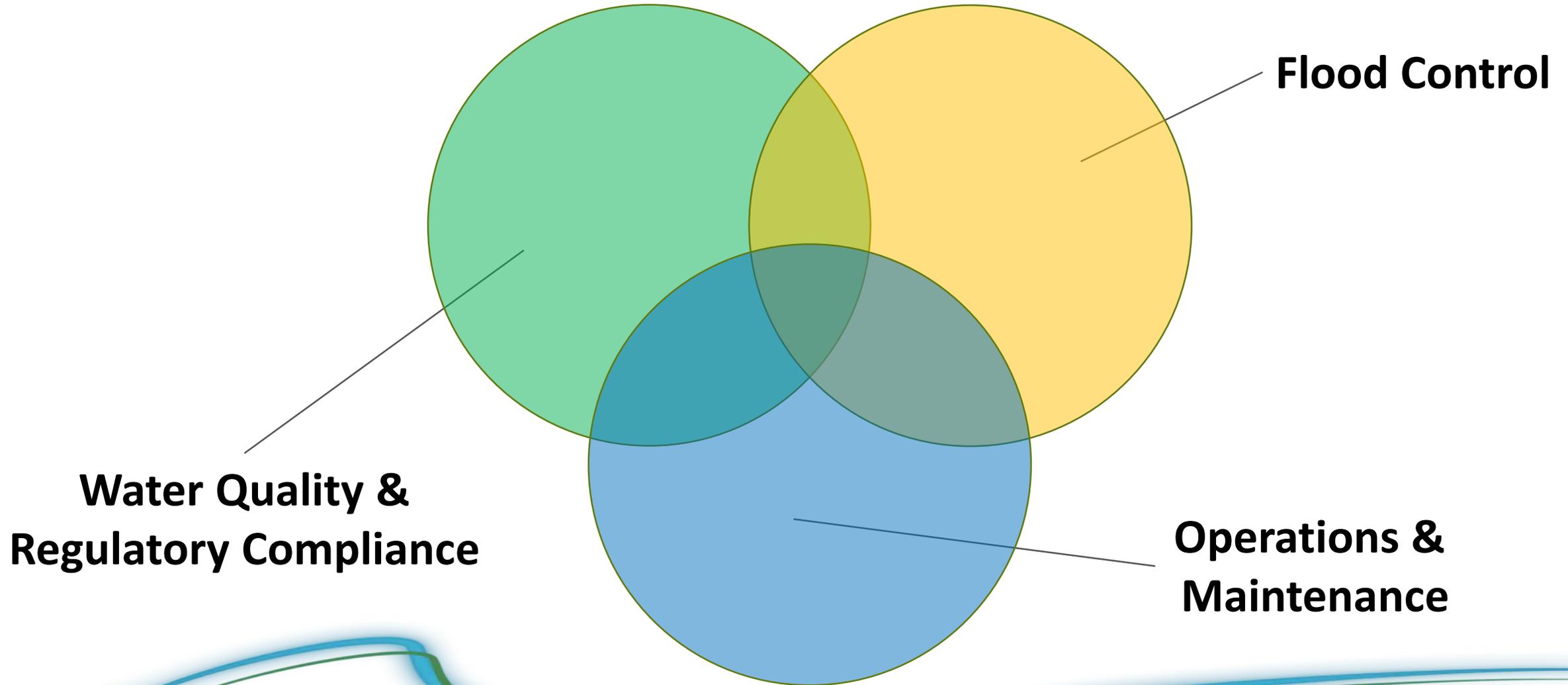
MARCH 13, 2018

STORMWATER FY 2019-2024 BUDGET ISSUES

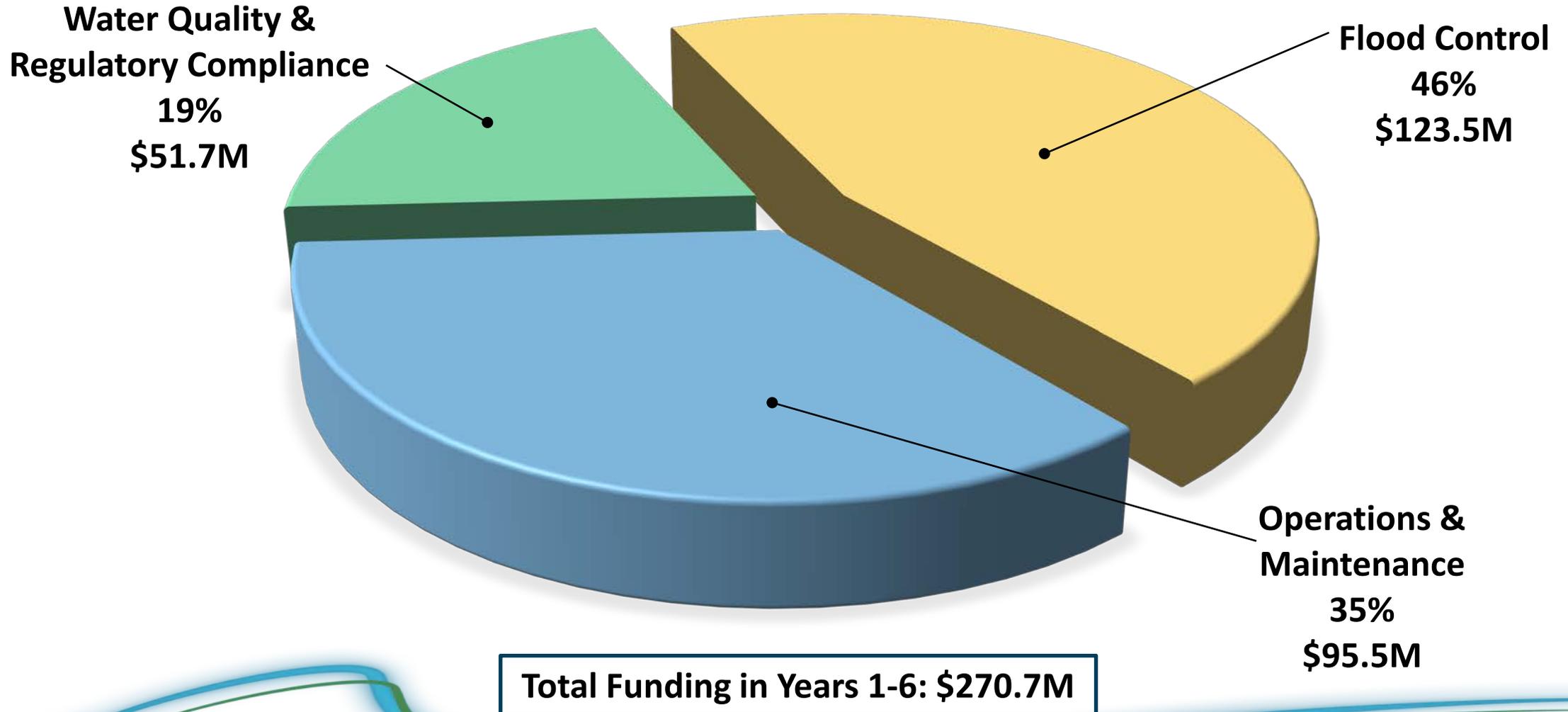
- Flood Control has become a critical neighborhood issue and is more complicated and expensive
- Stormwater Quality regulations and permitting are more demanding and compliance is mandatory
- More complicated projects and regulations are increasing Operation and Maintenance requirements
- Aging infrastructure is increasing the amount of maintenance needs

Future stormwater utility fee increases will be necessary to address current and future funding needs for stormwater management projects.

STORMWATER CAPITAL IMPROVEMENT PROGRAM (CIP)



PROPOSED STORMWATER FY 2019-2024 CIP FUNDING



PROPOSED STORMWATER FY 2019-2024 CIP

FLOOD CONTROL								
CIP	Project Title	ATD	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
7400	Aragona Drainage Improvements	\$ 3,760,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7047	Ashville Park Drainage Improvements	\$ 2,000,000	\$ 3,000,000	\$ 4,000,000	\$ -	\$ -	\$ -	\$ -
7036	Baker Road Culvert and Ditch Improvements	\$ 450,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7036	Bellamy Manor Outfall Ditch	\$ 750,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7041	Central Resort District Drainage Improvements	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7030	Citywide Sea Level Rise/Recurrent Flooding Analysis	\$ 3,844,447	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7402	College Park and Level Green Drainage Improvements	\$ 498,687	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7151	Eastern Shore Drive Drainage Phase I	\$14,139,357	\$ 4,200,000	\$ 6,200,000	\$ 8,600,000	\$ 7,000,000	\$ 8,000,000	\$ 8,000,000
7053	Lake Bradford / Lake Chubb	\$ 1,084,100	\$ 1,084,100	\$ 1,084,100	\$ 1,084,100	\$ 1,084,100	\$ 1,084,100	\$ 1,084,100
7413	Neighborhood SW Infrastructure Improvements II	\$ 4,049,995	\$ 1,150,000	\$ 550,000	\$ 550,000	\$ 3,550,000	\$ 3,550,000	\$ 3,550,000
7005	North Lake Holly Watershed	\$18,671,135	\$ 1,200,000	\$ 1,800,000	\$ 1,800,000	\$ -	\$ -	\$ -
7048	Sherwood Lakes Drainage Improvements	\$ 1,000,000	\$ 2,000,000	\$ -	\$ -	\$ -	\$ -	\$ -
7016	South Lake Holly Watershed	\$16,609,587	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7024	Southern Canal/Lead Ditch and Culvert Improvements	\$ 2,350,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000
7027	SWM Master Planning, Analysis, and Inventory	\$ 8,070,906	\$ 1,700,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000	\$ 800,000
7050	Princess Anne Plaza Drainage Area	\$ 2,000,000	\$ 3,000,000	\$ 4,000,000	\$ 4,000,000	\$ 2,000,000	\$ 5,000,000	\$ 7,000,000
7051	The Lakes Drainage Improvements	\$ 2,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7028	Windsor Woods Drainage	\$11,177,237	\$ 1,500,000	\$ 1,000,000	\$ 5,000,000	\$ 5,000,000	\$ 2,000,000	\$ 1,300,000
TOTALS		\$92,755,451	\$ 19,134,100	\$ 19,734,100	\$ 22,134,100	\$ 19,734,100	\$ 20,734,100	\$ 22,034,100

PROPOSED STORMWATER FY 2019-2024 CIP

WATER QUALITY & REGULATORY COMPLIANCE								
CIP	Project Title	ATD	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
7406	Elizabeth River TMDL Implementation Plan	\$ 7,500,000	\$ 1,100,000	\$ 700,000	\$ 700,000	\$ 700,000	\$ 700,000	\$ 700,000
7054	Lynnhaven River Watershed - II	\$ -	\$ 1,759,068	\$ 1,359,068	\$ 1,311,762	\$ 311,762	\$ 311,762	\$ 311,762
7410	Southern Rivers TMDL Implementation Plan	\$ 900,000	\$ 400,000	\$ 450,000	\$ 500,000	\$ 400,000	\$ 400,000	\$ 400,000
7414	Storm Water Quality Enhancements - II	\$ 9,365,254	\$ 2,902,694	\$ 3,652,694	\$ 3,650,000	\$ 4,750,000	\$ 4,750,000	\$ 4,750,000
7042	Surface Water Regulatory Compliance Program	\$ 5,031,942	\$ 2,400,000	\$ 2,400,000	\$ 2,400,000	\$ 2,400,000	\$ 2,400,000	\$ 2,400,000
7043	Water Quality and Restoration Participation Projects II	\$ 1,516,773	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
TOTALS		\$24,313,969	\$ 8,611,762					

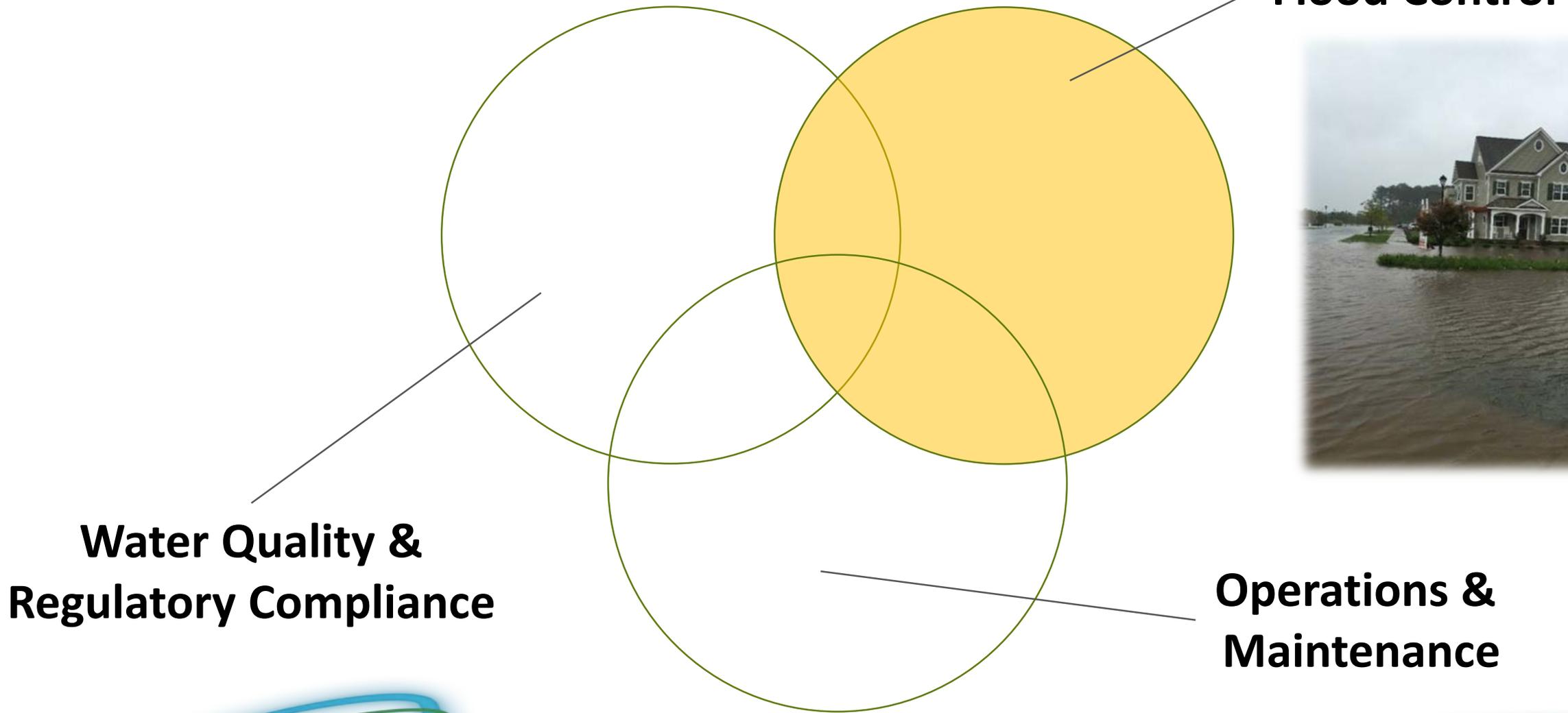
OPERATIONS & MAINTENANCE								
CIP	Project Title	ATD	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
								\$51.7M
7040	Flood Mitigation Assistance Grant Program II	\$ 1,227,144	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7032	Flood Mitigation Assistance Grant Program	\$ 874,061	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
7415	Lake & Canal Management II	\$27,260,128	\$ 4,947,652	\$ 4,947,652	\$ 4,947,652	\$ 4,947,652	\$ 4,947,652	\$ 4,947,652
7411	Oceanfront Storm Water Facilities Maintenance	\$ 3,858,000	\$ 1,650,000	\$ 1,650,000	\$ 1,650,000	\$ 1,650,000	\$ 1,650,000	\$ 1,650,000
7023	Primary System Infrastructure Improvements II	\$ 8,350,000	\$ 2,270,000	\$ 2,270,000	\$ 2,270,000	\$ 2,270,000	\$ 2,270,000	\$ 2,270,000
7026	Residential Drainage Cost Participation Program	\$ 250,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000
7412	Storm Water Pump Station Modifications	\$ 5,025,229	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000	\$ 1,250,000
7416	SW Infrastructure Rehabilitation & Improvements II	\$33,106,982	\$ 5,750,000	\$ 5,750,000	\$ 5,750,000	\$ 5,750,000	\$ 5,750,000	\$ 5,750,000
TOTALS		\$79,951,544	\$15,917,652	\$15,917,652	\$15,917,652	\$15,917,652	\$15,917,652	\$15,917,652

\$95.5M

PROPOSED STORMWATER FY 2019-2024 CIP ADDITIONAL FUNDING REQUESTS

- SW-OM1 Canal Management Phase I \$12.0M
- SW-OM2 42nd Street Outfall Lining and Repair \$ 4.0M
- SW-OM3 Pinewood Road Stormwater Drainage Improvements \$ 1.0M

FLOOD CONTROL CIP



2017 COMPLETED FLOOD CONTROL PROJECTS

- Cape Henry/ Cape Story/ Lynnhaven Colony Tidal & Rainfall Flooding Interim Improvement (Tide Gates)
- North Lake Holly Section IV
- South Lake Holly Section I & II
- Thalia Drive Culvert Improvements

Thalia Drive Culvert Improvements



Cape Henry Tide Gate



South Lake Holly



2018 CURRENT FLOOD CONTROL CONSTRUCTION PROJECTS

- Northgate Ditch & Windsor Woods Canal
- South Lake Holly Section IV
- Bellamy Manor Outfall Ditch
- Lake Smith Weir Replacement
- North Lake Holly Section IIIA

Northgate Ditch



South Lake Holly

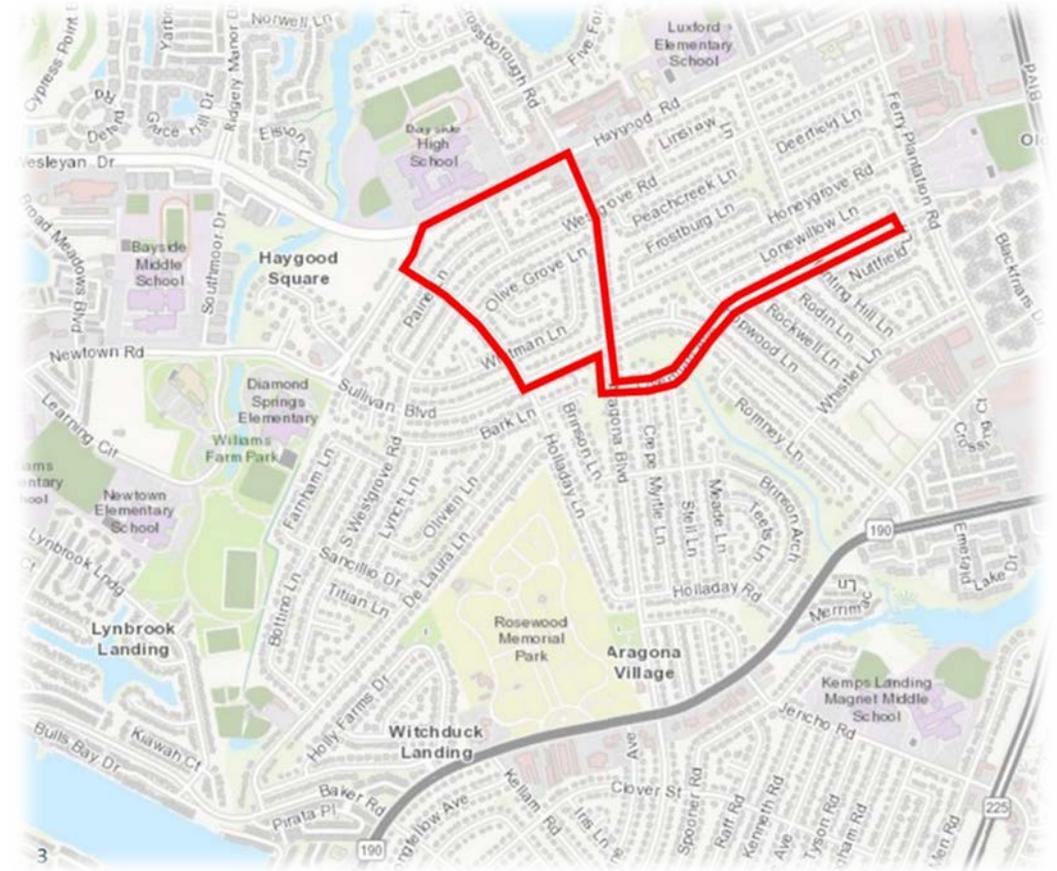


Bellamy Manor Outfall Ditches



7-400 ARAGONA DRAINAGE IMPROVEMENTS

- Storm drain improvements to address severe roadway and property flooding
- Project limits include the area south of Haygood Rd. and west of Aragona Blvd.
- Under Design – Approximately 90% Complete
- Advertise for Construction in July 2018



Total Project Cost: \$3.76 M

7-047 ASHVILLE PARK DRAINAGE IMPROVEMENTS

- Storm drain improvements to address severe roadway and property flooding
- Phase I design is underway – 30% Complete
- Cost participant with Developer
- Phase I Estimated Project Cost – \$11.2M - \$13.5M

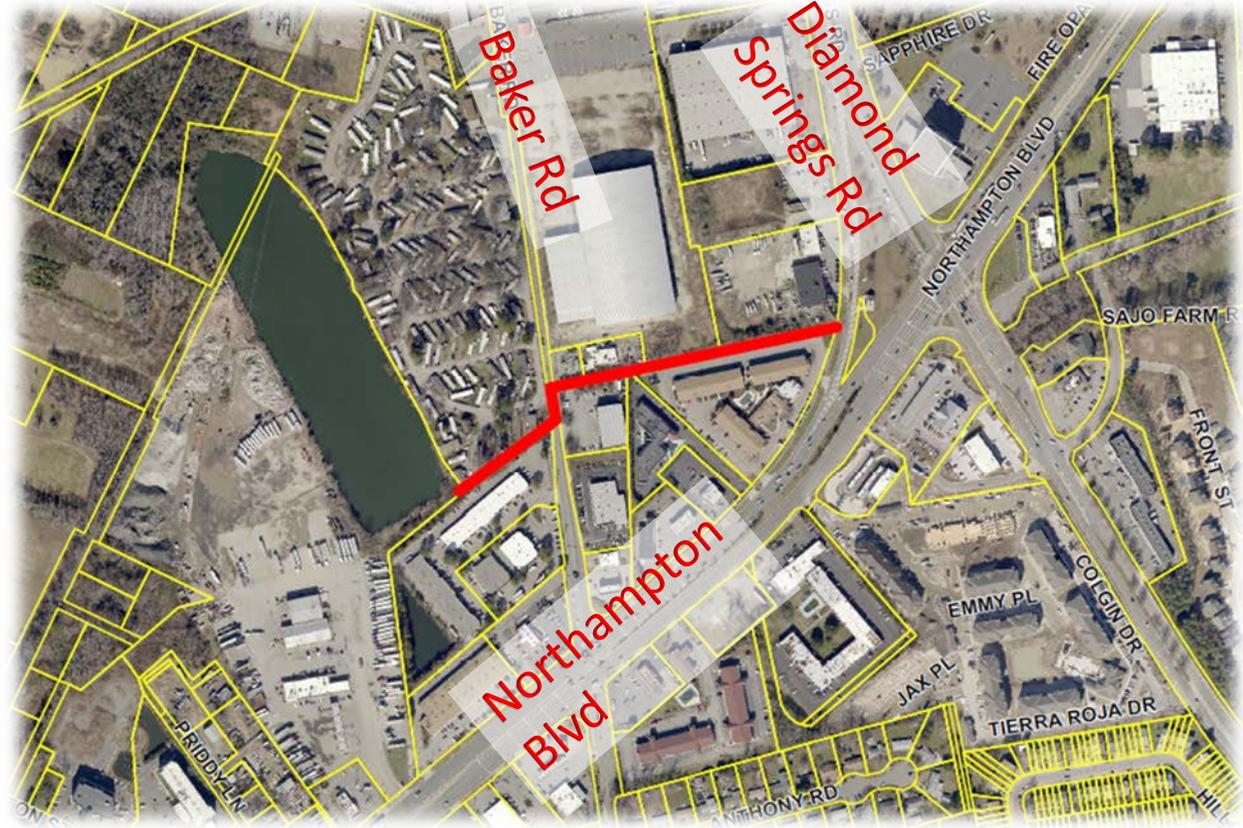


Total Project Cost: \$35.0 M

\$26 M Balance to Complete

7-036 BAKER ROAD CULVERT AND DITCH IMPROVEMENTS

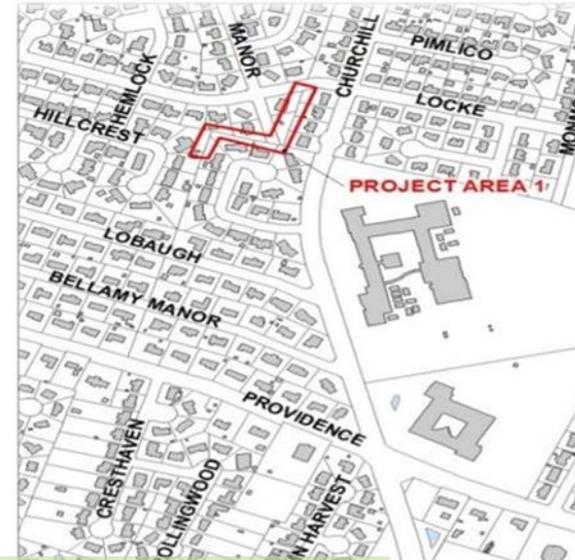
- Storm drain pipe and ditch improvements from Baker Road to Diamond Springs Road north of Northampton Boulevard
- Coordinating with Burton Station SGA
- Acquisition phase
- Construction: 7/2018 – 12/2019



Total Project Cost: \$450 K

7-037 BELLAMY MANOR OUTFALL DITCH

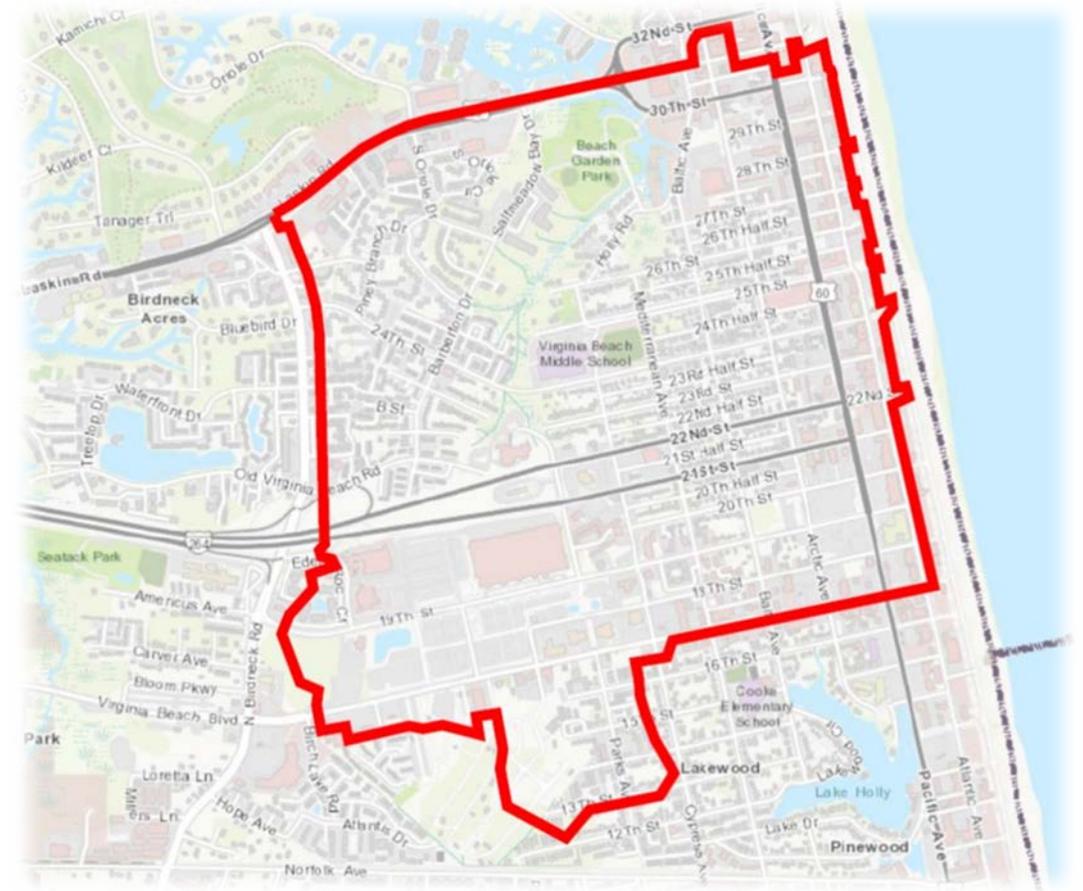
- Drainage improvements to the existing primary drainage system within Bellamy Manor
- Under construction
- Completion: Summer 2018



Total Project Cost: \$750 K

7-041 CENTRAL RESORT DISTRICT DRAINAGE IMPROVEMENTS

- Multi-phase project to address severe roadway and structural flooding
- Includes tide gate, pump station & ocean outfall
- Interim Project:
 - Replace existing 42" pipe located under 24th Street with box culvert or bridge ~ \$6M
 - Redirect approx. 15 ac area of 21st St and Baltic Ave. to exist. 16th St. Pump Station ~ \$15M



Total Project Cost: \$113 M

\$112.7 M Balance to Complete

7-030 CITYWIDE SEA LEVEL RISE /RECURRENT FLOODING ANALYSIS

- Identify the probable extent of Sea Level Rise / Recurrent Flooding impacts
- Evaluate appropriate adaptation strategies in the vulnerable areas
- Identify budgetary costs for engineered protection measures and other adaptation

Life Cycle Alignment	Time Horizon/ Time Period	SLR Value	Relevance
Municipal Planning	20-40 years 2035-2055	1.5 ft	Comprehensive Plan & Outcomes Commercial and Utility life-cycles
Critical Infrastructure	50-70 years	3.0 ft	Utility Infrastructure life-cycle
Long-term awareness	2065-2085		Transportation infrastructure lifecycles Residential structure lifecycles
Adaptive Capacity			

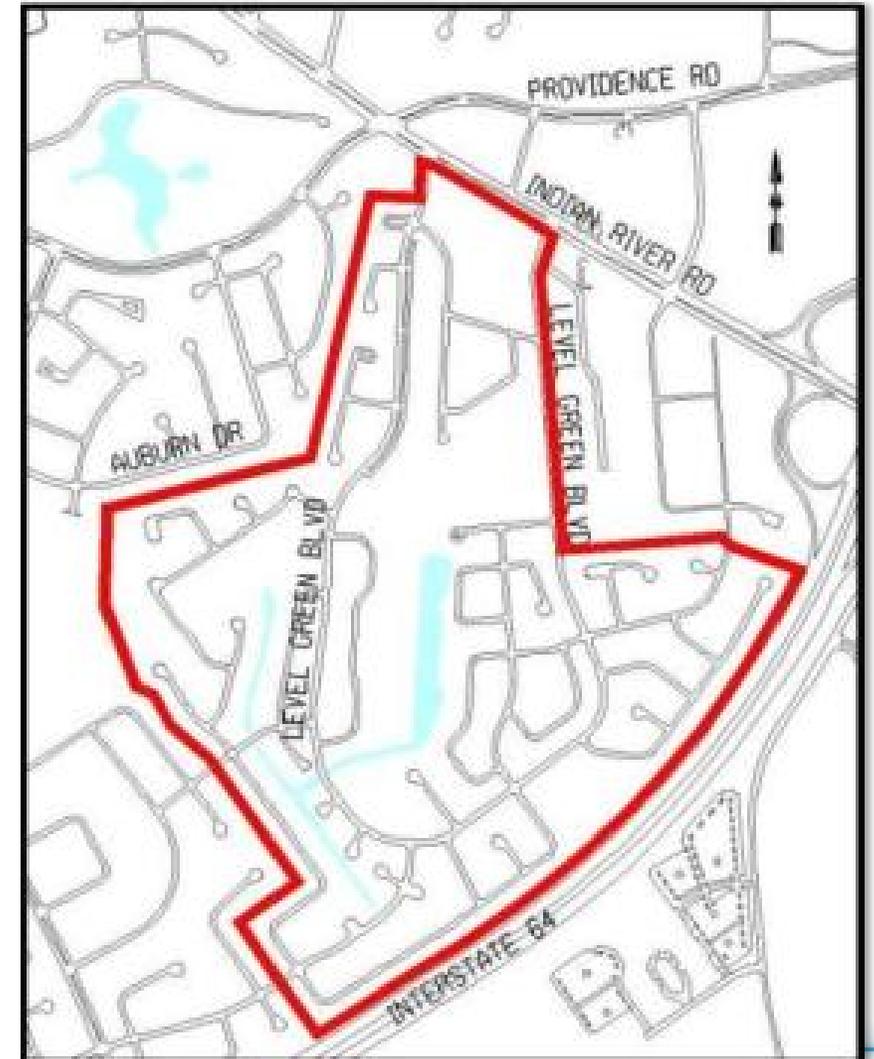


Total Project Cost: \$3.8 M

7-402 COLLEGE PARK/LEVEL GREEN DRAINAGE IMPROVEMENTS

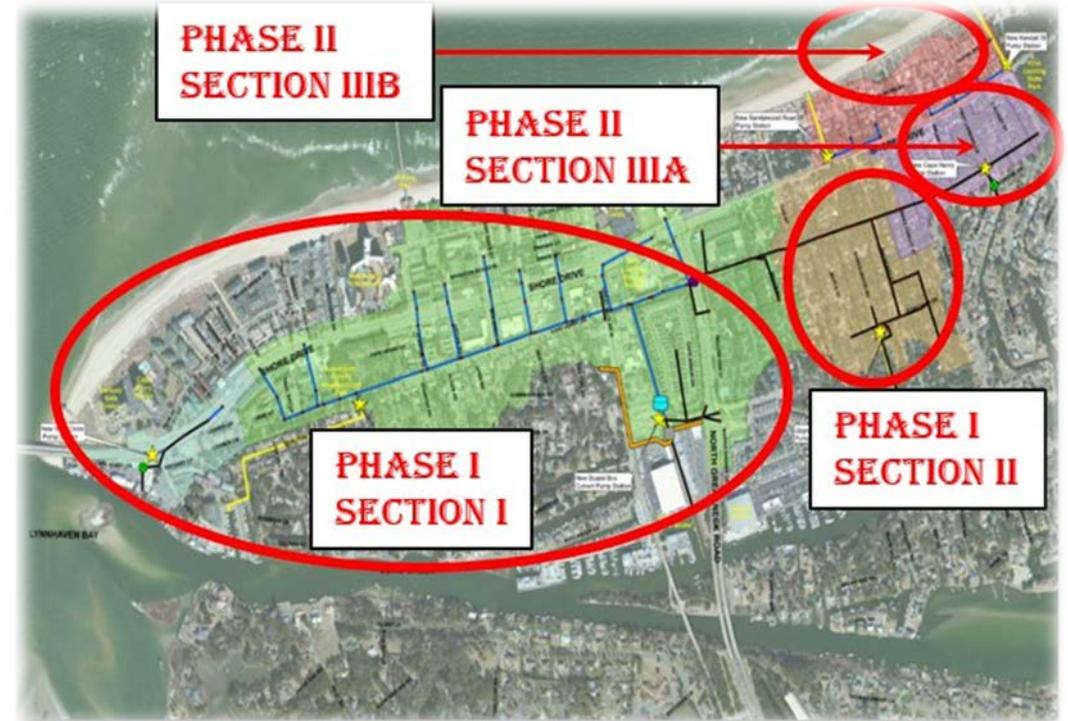
- Improve neighborhood storm drain system
- Preliminary Design identified critical pipe locations to clean and inspect (scheduled for Spring 2018)
- First phase of construction improvements scheduled for late winter 2018

Total Project Cost: \$500 K



7-151 EASTERN SHORE DRIVE DRAINAGE PHASE I

- Multi-phase project
(Phase I, Section I & II Funded)
- Improvements include stormwater collection systems, tide gates & pump stations
- Cape Henry Canal Drainage Improvements design underway
 - Advertise for construction – July 2018

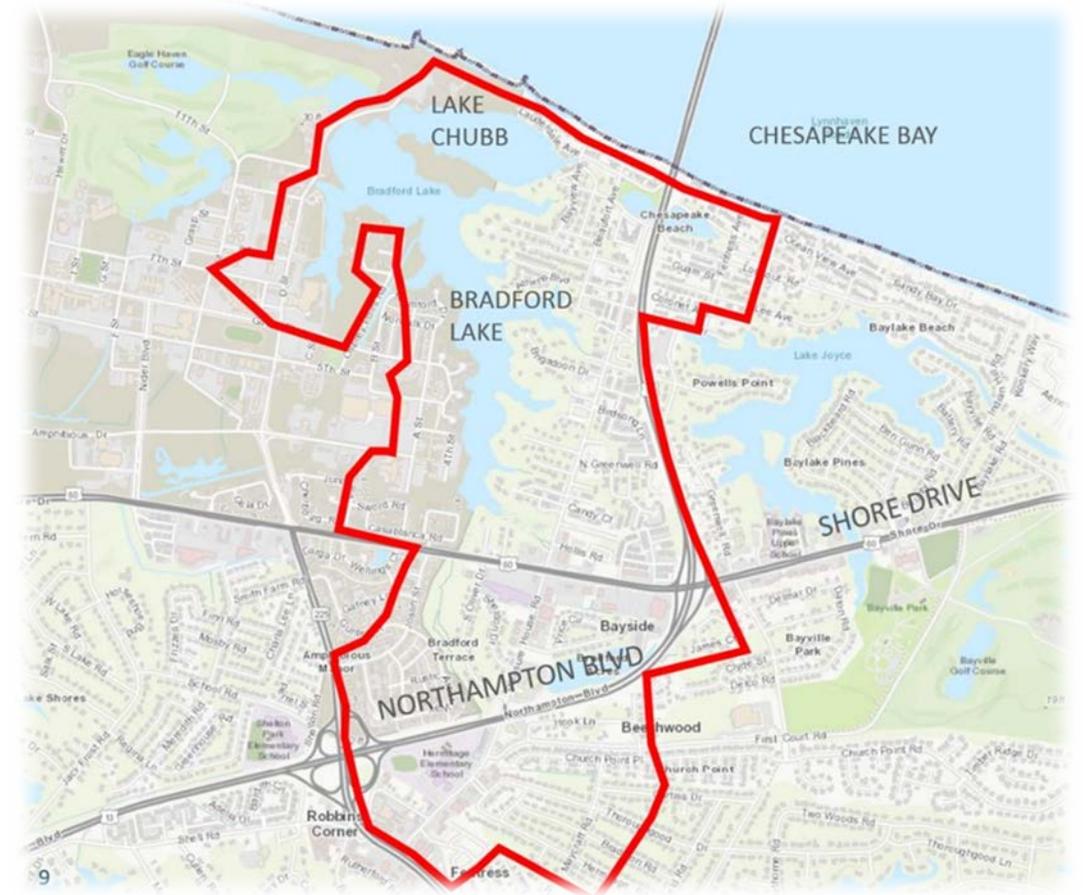


Total Project Cost: \$83.2 M

\$27.1 M Balance to Complete

7-053 LAKE BRADFORD / LAKE CHUBB

- Storm drain improvements to address severe roadway and property flooding
- Multi-phase project which will include culverts under roadways & tide control devices
- PW is coordinating with Navy to maintain the existing canal located on the Base
- Detailed engineering analyses underway to develop the specific program of flood control measures



Total Project Cost: \$32.0 M

\$24.4 M Balance to Complete

7-413 NEIGHBORHOOD STORMWATER INFRASTRUCTURE IMPROVEMENTS II

Current Projects

- 50th Street Drainage Improvements
- Goodspeed Road Pump Station Modification Study

Completed Projects

- Thalia Drive Culvert Replacement
- 24th-1/2 Street Drainage Improvements
- Indian River Rd. Culvert Improvements
- Muddy Creek Rd. Culvert Improvements
- Ocean Park Drainage Improvements



Thalia Drive Culvert



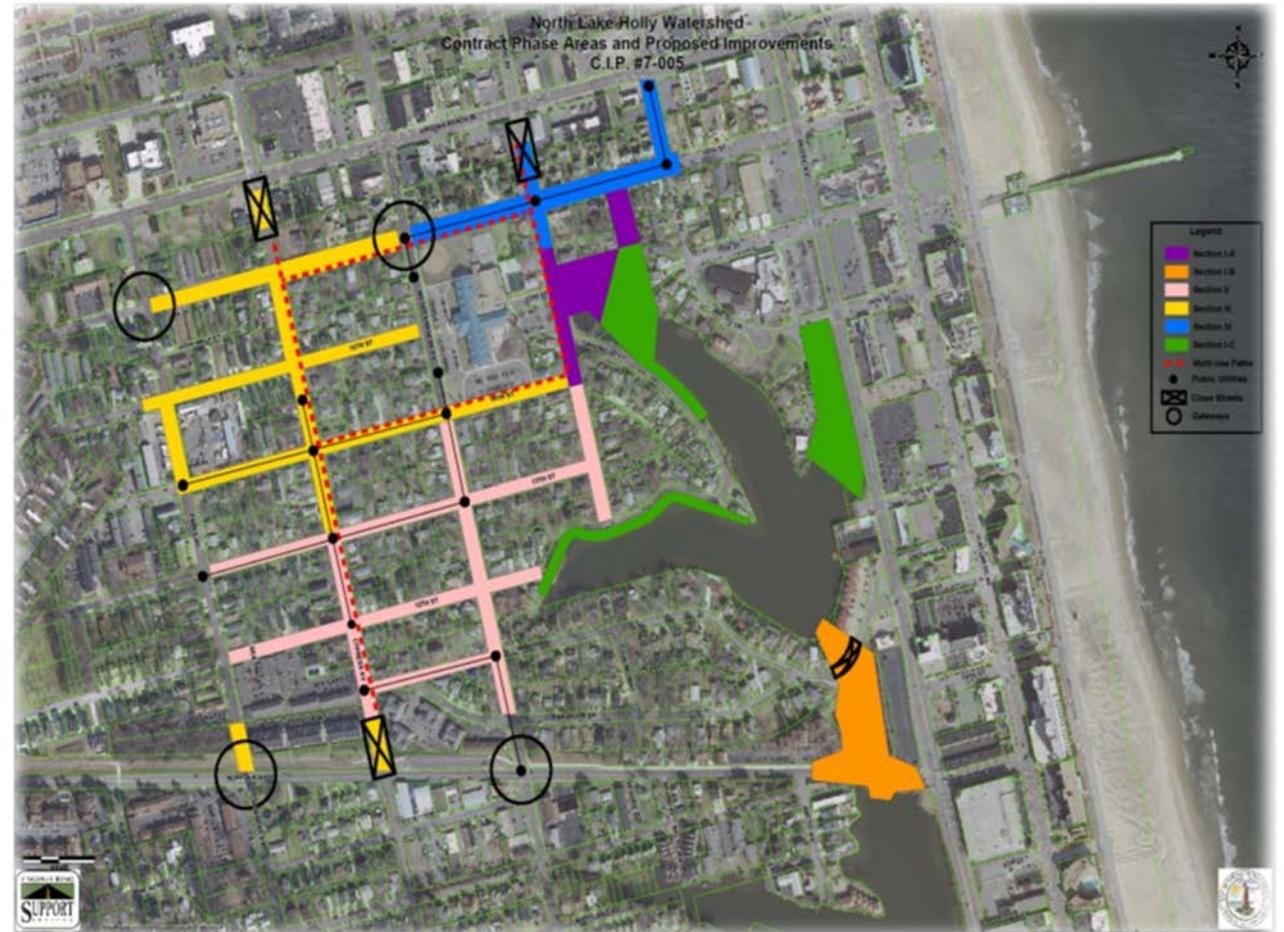
FY 19 Funding: \$1.15 M

7-005 NORTH LAKE HOLLY WATERSHED

<u>Completed</u>	
	Section I-A \$1.43M
	Section I-B \$2.47M
	Section II \$3.95M
	Section IV \$3.00M

<u>Under Construction</u>	
	Section IIIA \$5.09M Construction 3/2018–9/2020

<u>Under Design</u>	
	Section I-C \$2.70M Construction 7/2019-12/2020
	Section III B \$4.86M Construction 7/2020–12/2021



Total Project Cost: \$23.5 M

7-048 SHERWOOD LAKES DRAINAGE IMPROVEMENTS

- Storm drain improvements to address severe roadway and property flooding
- Includes pump station and an interconnecting pipe between the two lakes
- Design Complete
- Begin Construction July 2018



Total Project Cost: \$3 M

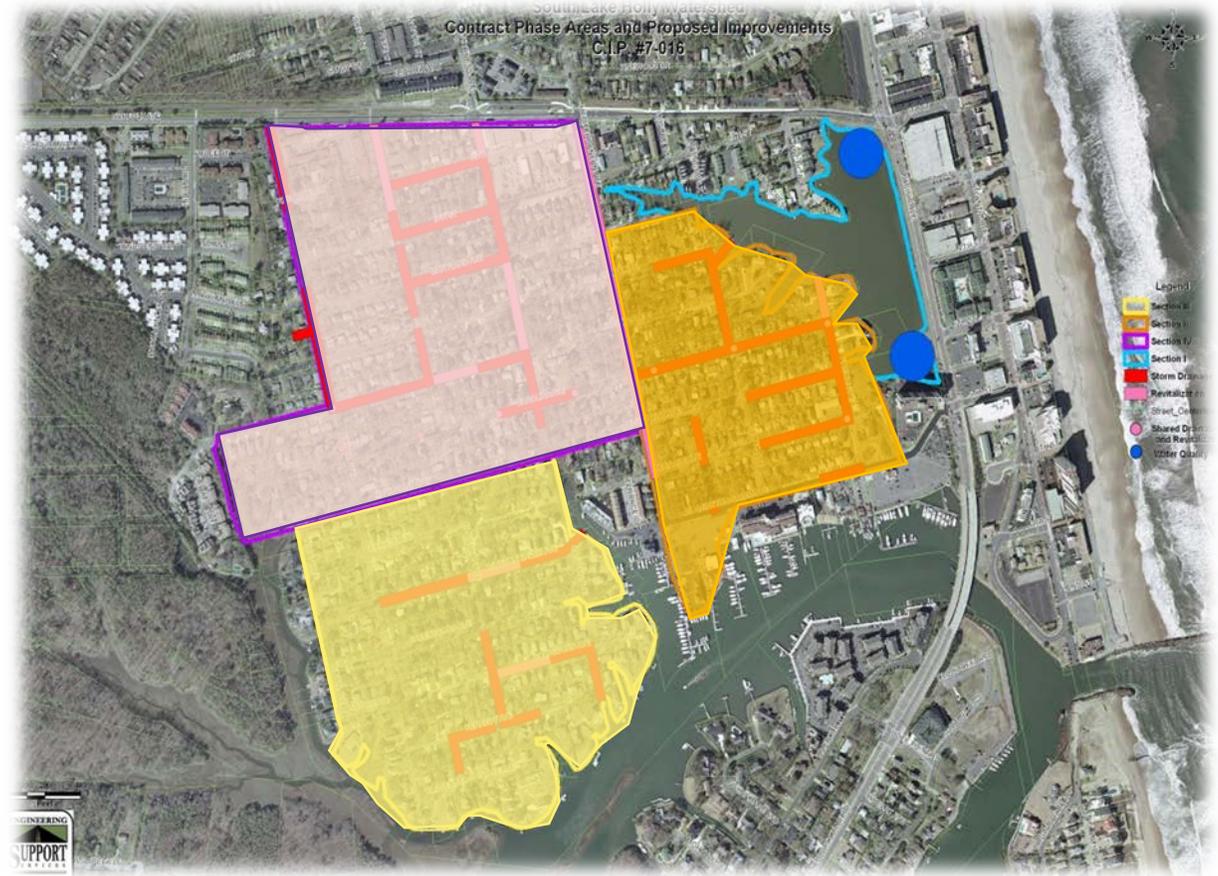
7-016 SOUTH LAKE HOLLY WATERSHED

Completed

-  Section III \$2.3 M
Construction 9/2013
-  Section II \$4.71 M
Construction 12/2017
-  Section I \$0.60 M
Construction 12/2017

Under Construction

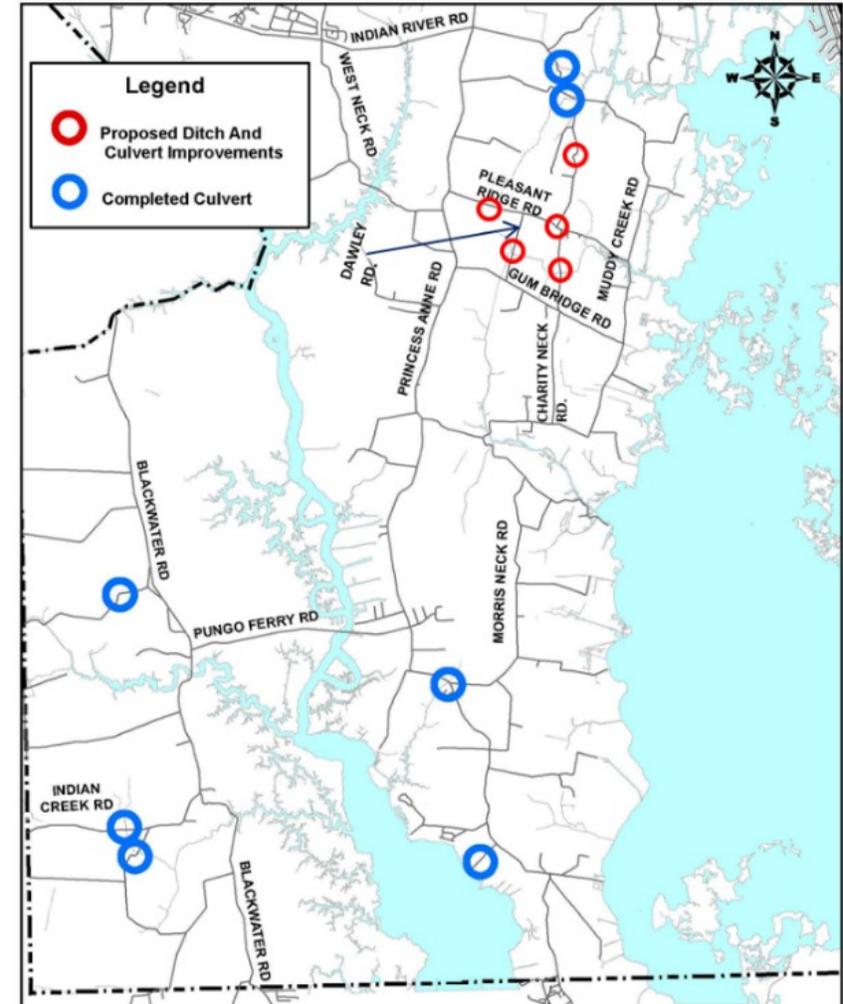
-  Section IV \$9.0 M
Construction 10/2017-12/2019



Total Project Cost: \$16.6 M

7-024 SOUTHERN CANAL / LEAD DITCH AND CULVERT IMPROVEMENTS

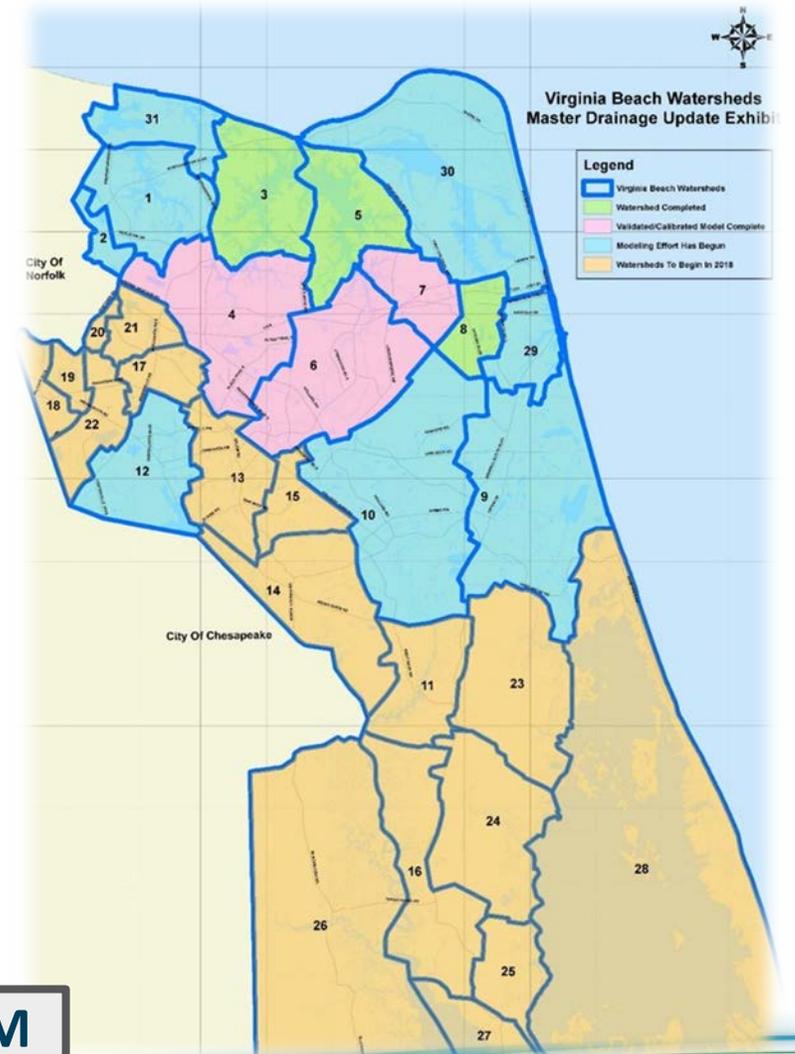
- Canal / Lead Ditch and Culvert Improvements within southern watersheds
- Princess Anne Road & Morris Neck Culverts – 2012
- Head River Road & Craggs Causeway Culverts – 2015
- Indian Creek Culvert – 2016
- Pleasant Ridge Road under design



Funding: \$300 K/year

7-027 SWM MASTER PLANNING, ANALYSIS, AND INVENTORY

- Updating the City's 31 Stormwater Watershed Models
- Includes Preliminary Drainage Analysis to identify future Capital Drainage Projects
- Models will provide drainage design parameters such as downstream water surface levels to developers for projects
- Models will be kept up to date and reside in the Stormwater Engineering Center



Total Project Cost: \$13.7 M

7-028 WINDSOR WOODS, 7-050 PRINCESS ANNE PLAZA & 7-051 THE LAKES DRAINAGE IMPROVEMENTS

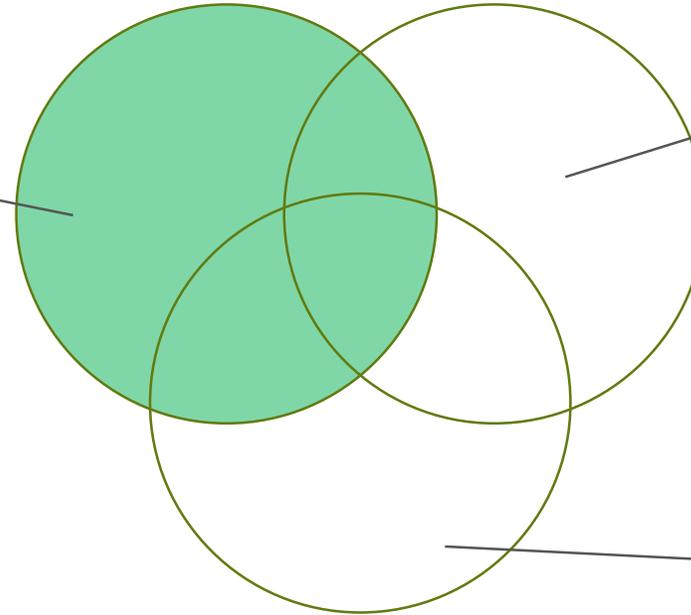
- Storm drain improvements to address severe roadway and structural flooding
- Includes stormwater collection systems, tide gates & pump stations
- Detailed Engineering Analyses underway to develop the specific program of flood control measures
- Projects combined for initial analysis



CIP	Project	Estimated Project Cost	Balance to Complete
7-028	Windsor Woods	\$ 35.0 M	\$ 8.0 M
7-050	Princess Anne Plaza	\$ 66.0 M	\$ 39.0 M
7-051	The Lakes	\$ 28.0 M	\$ 26.0 M
		\$ 129.0 M	\$ 73.0 M

WATER QUALITY & REGULATORY COMPLIANCE CIP

Water Quality &
Regulatory Compliance



Flood Control

Operations &
Maintenance

2017 Accomplishments

- 1st major update to **MS4 Program Plan** since 2001
- Execution of **SWIFT trading agreement** with HRSD
- Virginia Department of Environmental Quality **Audit** of MS4 program

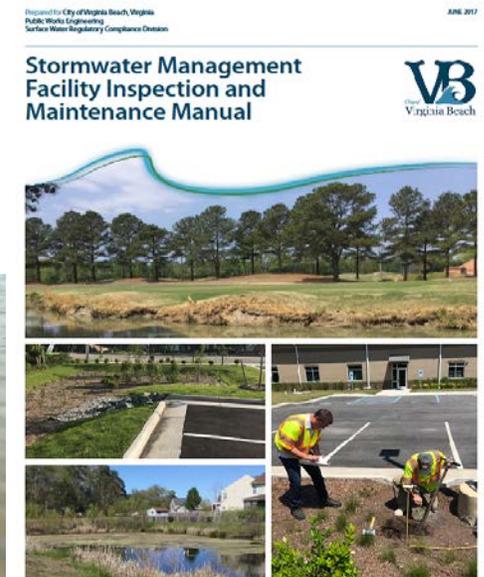
7-042 SURFACE WATER REGULATORY COMPLIANCE PROGRAM

Operational compliance activities for MS4 Stormwater Permit

**FY19 Funding
\$2.4 M**

New Permit Program Year 1 Achievements

- SWMF Inspection & Maintenance Manual developed
- Floatables Reduction Plan created
- Annual Dry Weather Screening
- Mapping of Lynnhaven River MS4 outfalls



7-042 SURFACE WATER REGULATORY COMPLIANCE PROGRAM

Operational compliance activities for the new MS4 Stormwater Permit

Public Outreach & Education Initiatives

- Educational Materials Developed
 - MS4 Program
 - Lake Management Program
- Outreach Plan Developed
- Encourage Citizen Water Quality Improvements
 - Elizabeth River Project
 - Lynnhaven River NOW



Rain Garden



Rain Barrel

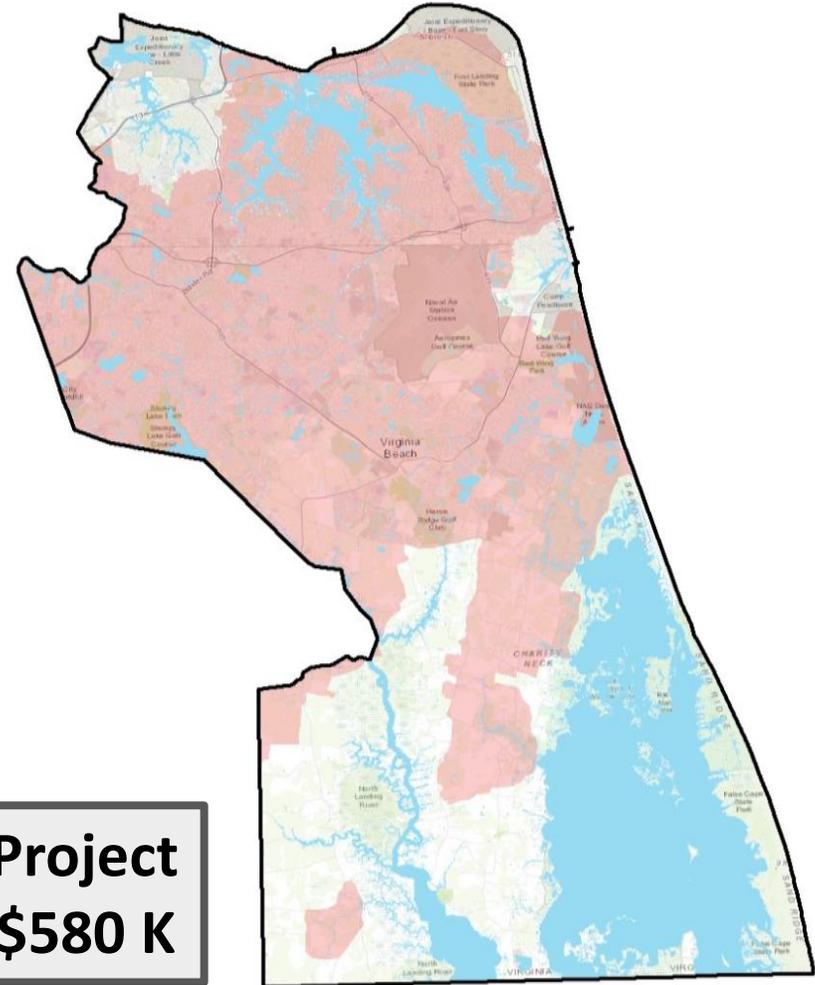
7-414 STORMWATER QUALITY ENHANCEMENTS II

**FY19 Funding
\$2.9 M**

Chesapeake Bay TMDL Action Planning

- First Phase Plan - 80% Complete
- Required First Phase Pollutant Reductions will be achieved by:
 - Construction Projects
 - Street Sweeping Program
- Future Compliance using:
 - HRSD Pollutant Trading Agreement

**Total Project
Cost: \$600 K**



Local TMDL Action Planning

- Phosphorus TMDL
 - Plan - 60% Complete
- Bacteria TMDL
 - Plan - 60% Complete

**Total Project
Cost: \$580 K**

7-414 STORMWATER QUALITY ENHANCEMENTS II

Monitoring Program

- Stormwater Management Facility Monitoring
- Watershed Monitoring with USGS and HRSD

**Total Annual Cost:
\$150 K/year**

- Watershed Projects
 - Lake James Watershed Monitoring
 - City View Park Modeling & Monitoring

**Total Project Cost:
\$600 K**



Lindsley Drive at Linkhorn
Estates Monitoring Equipment



Lake James Monitoring Site

7-414 STORMWATER QUALITY ENHANCEMENTS II

Project Planning

- TMDL Pollutant Reduction Requirements
- Projects Required by the Stormwater MS4 Permit and to address untreated roadways



Accomplishments

- Identified & Analyzed **112 Potential Project Locations** Citywide
- Initiated Preliminary Design for **22 Projects**

7-406 ELIZABETH RIVER TMDL IMPLEMENTATION PLAN

Kemps Lake Water Quality Improvement Project

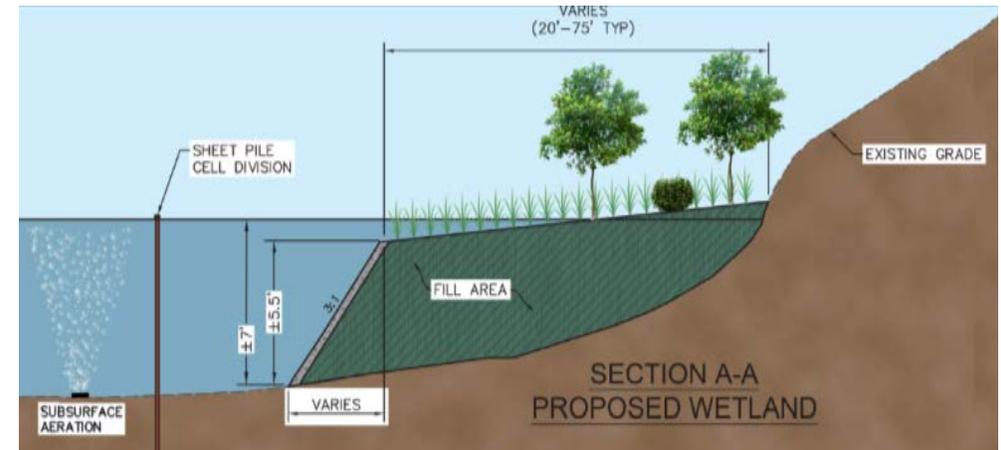
**FY19 Funding
\$1.1 M**

- Constructing wetlands, pretreatment sediment forebays, and aeration
- Awarded DEQ Stormwater Local Assistance Funding Grant
- Design 95% Complete
- Acquisition Phase
- Construction: 10/2018 - 11/2019



Kemps Lake located adjacent to Witchduck Road and Greenwich Road

**Total Project
Cost: \$5.6 M**



Proposed Wetland Cross Section

7-406 ELIZABETH RIVER TMDL IMPLEMENTATION PLAN

Chatham Hall Lake Water Quality Improvement Project

- Constructing wetlands, pretreatment sediment forebays, and aeration
- Awarded DEQ Stormwater Local Assistance Funding Grant
- Design 10% Complete
- Construction: 9/2019 - 10/2020

**Total Project
Cost: \$2.0 M**



Chatham Hall Park



Chatham Hall Lake located adjacent to
Providence Road and Kempsville Road

7-406 ELIZABETH RIVER TMDL IMPLEMENTATION PLAN

Price Street Water Quality Improvement Project

- Cost Participation Project
- Constructing Wet Pond
- Treating 90 acres of existing industrial and residential areas
- Design 90% Complete
- Construction: 6/2018 - 2/2019



Project located adjacent to Southern Boulevard and Euclid Road in Central Village District

**Total Project
Cost: \$2.9 M**

*7-054 LYNNHAVEN RIVER WATERSHED – II

Bayville Lake Water Quality Improvement Project

**FY19 Funding
\$1.8 M**

- Constructing wetlands, pretreatment sediment forebays, and aeration
- Local Bacteria TMDL
- Resident Education Opportunity at Park
- Design Underway
- Construction: 11/2019 - 12/2020



Bayville Lake located adjacent to Shore Drive and First Court Road at Bayville Park

**Total Project
Cost: \$3.6 M**

*Indicates an ongoing project that completed a 10-year funding cycle in FY 2017-18 and will begin a new phase in FY 2018-19. Appropriations to Date will remain in the previous phase until exhausted.

7-410 SOUTHERN RIVERS TMDL IMPLEMENTATION PLAN

**FY19 Funding
\$400 K**

General Booth at Dam Neck Station and London Bridge Road Water Quality Improvement Project

- Local Bacteria TMDL
- Treating Existing Roadway
- Design Start May 2018

**Total Project
Cost: \$570 K**



Right of Way at General Booth & Dam Neck Station Road



City Easement adjacent to Corporate Landing Business Park

7-410 SOUTHERN RIVERS TMDL IMPLEMENTATION PLAN

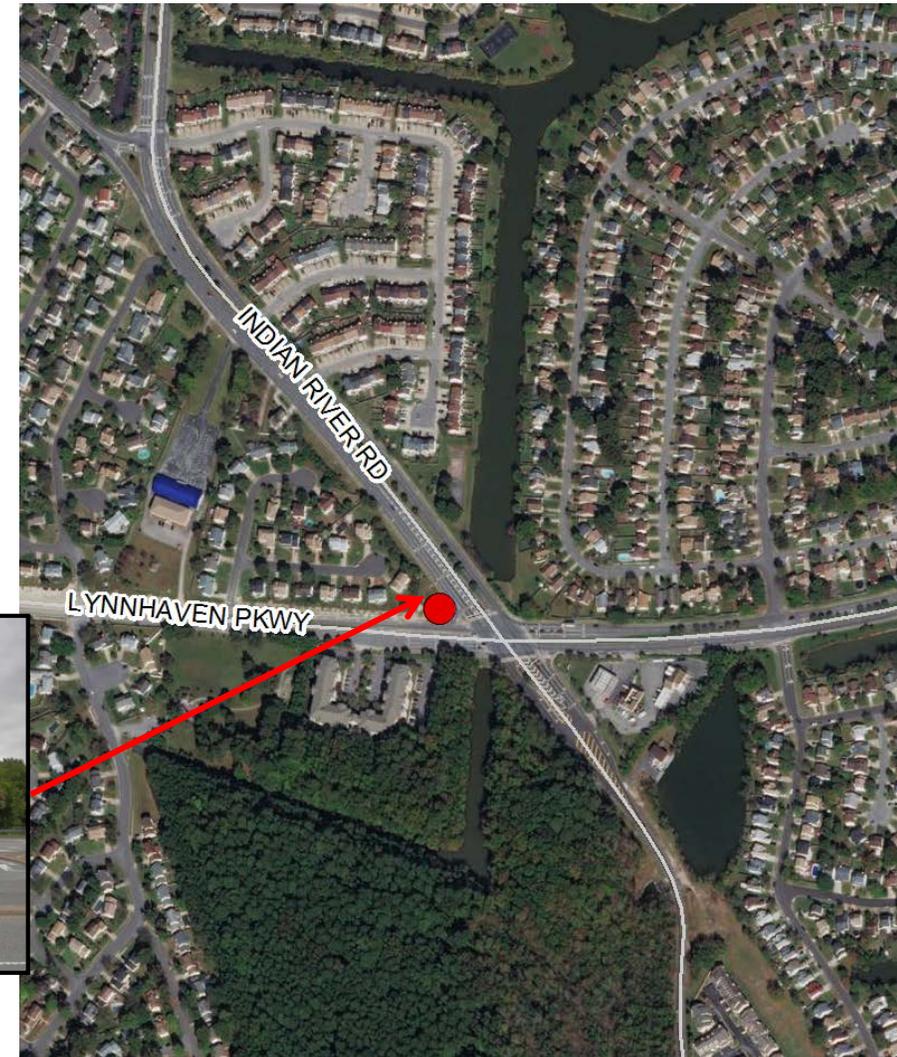
Indian River Road & Lynnhaven Parkway Water Quality Improvement Project

- Local Phosphorus and Bacteria TMDL Pollutant Reductions
- Treating Existing Roadway
- Evaluating Two Types of Facilities
- Design Start June 2018

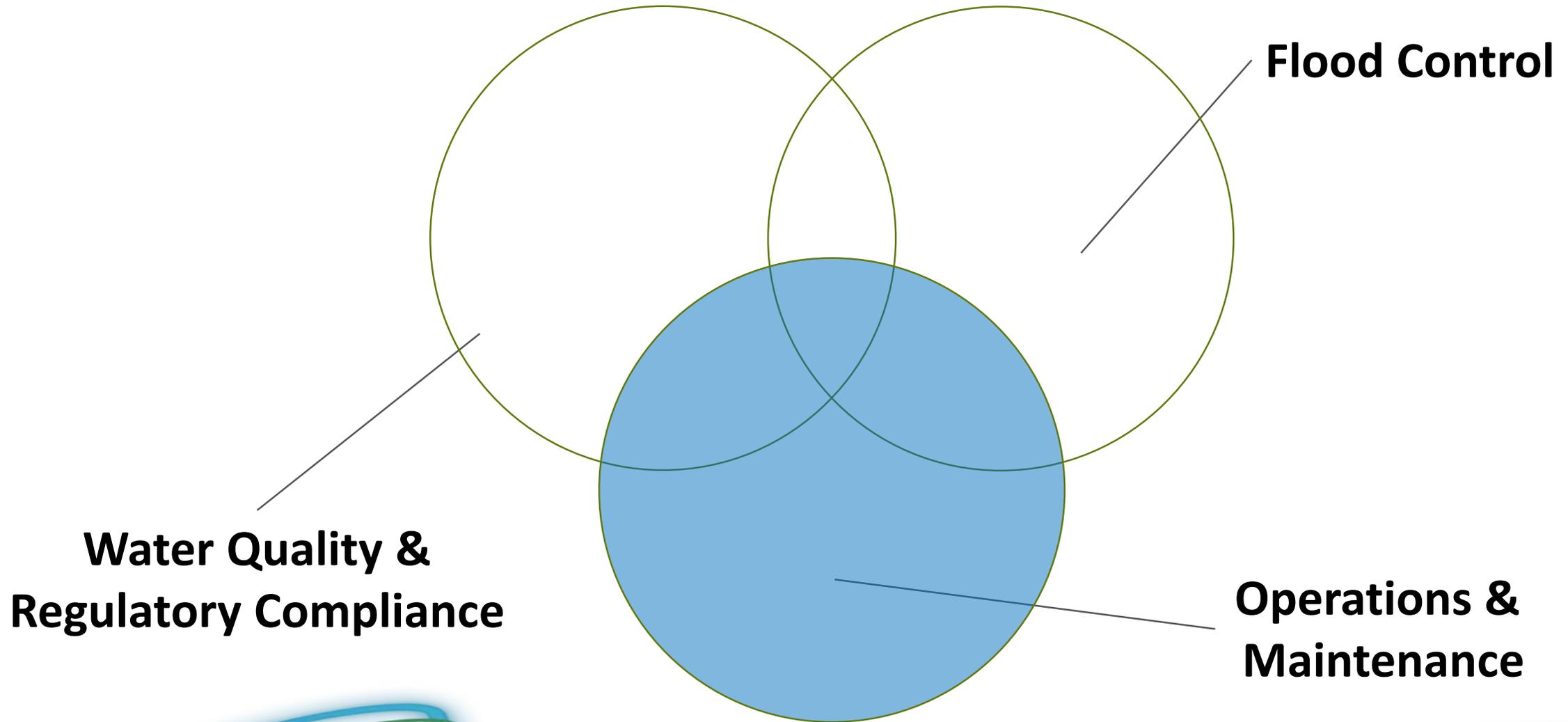
**Total Project
Cost: \$260 K**



Vacant City Parcel at Indian River Road and Lynnhaven Parkway



OPERATIONS & MAINTENANCE CIP

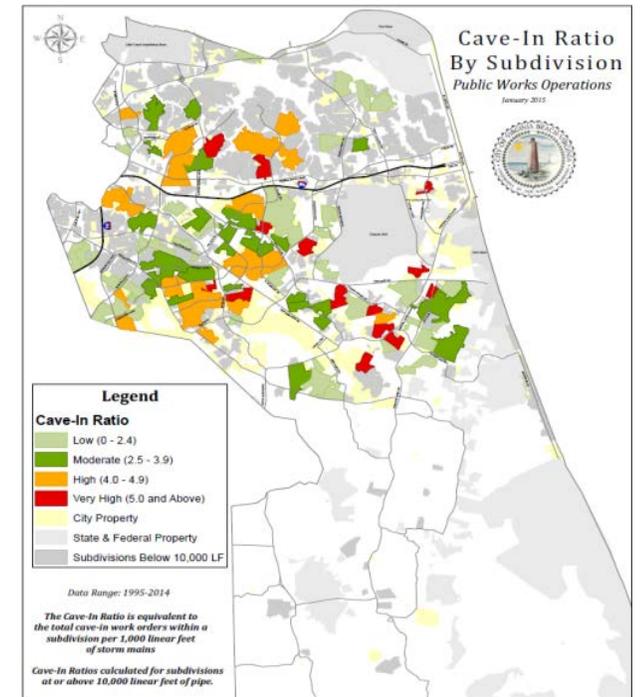


7-416 SW INFRASTRUCTURE REHABILITATION & IMPROVEMENTS II

Funding: \$5.75 M/Year

Neighborhood Pipe Rehabilitations

- Green Run & Glenwood – Complete
- Pine Ridge, Hunt Club Forest, White Pines, Middle Oaks & Strawbridge – Complete
- Kings Grant - Complete
- Lynnhaven Woods – Underway
- Landstown Lakes – Underway
- Magic Hollow – Underway
- Fairfield – Underway
- Bellamy Manor – Underway
- Malibu – Underway



7-415 LAKE & CANAL MANAGEMENT II

Completed Lakes:

- 2017 – Windsor Oaks West 1
- 2017 – Windsor Oaks West 2 PH 1
- 2017 – Green Run 2

2018 Planned Construction:

- Windsor Oaks West 2 PH 2
- Windsor Oaks West 3
- Brookside
- Centerpoint 1&2
- Lynnhaven Woods
- Green Run 3, 4 & 5

Under Current Funding:

- Increasing requests for canal dredging
- Allows us to maintain current 95 year cycle
- Cost of Dam/Spillway maintenance



7-023 PRIMARY SYSTEM INFRASTRUCTURE IMPROVEMENTS II

Funding: \$2.27 M/Year

Off Road Ditch Maintenance Program with Miles by Fiscal Year

YEAR (ZONES)	MILES
FY14: (F, J)	21
FY15: (B, M)	23
FY16: (C, N)	16
FY17: (D, L)	25
FY18: (E, K)	17
FY19: (A, I)	10
FY20: (G, O)	17
FY21: (H, P)	23
TOTAL	152

Program Cycles:

- 16 years - Original Cycle
- 8 years - Goal Cycle
- 12 years - Current Cycle



7-412 STORM WATER PUMP STATION MODIFICATIONS

Funding: \$1.25 M/Year

- The 15 stations are aging
- Rehab/overhaul program developed

Current plan:

- FY 18 - 79th Street Station
- FY 19 - Goodspeed Rd & Ocean Park Stations
- FY 20 - Cape Story Station
- FY 21 - Ocean view Station
- FY 22 - 16th Street Station
- FY 23 - 42nd Street Station



7-411 OCEANFRONT STORMWATER FACILITIES MAINTENANCE

Funding: \$1.65 M/Year

- Seawall Concrete Joint Sealants
- Pump Station Slab Repairs
- Full Depth Boardwalk Repairs
- Stair Nosing Replacements



7-026 RESIDENTIAL DRAINAGE COST PARTICIPATION PROGRAM

Funding: \$50 K/Year

- Citizen cost participation programs for roadside pipe and lake algae control
- 600 + lakes eligible for treatment at \$1-10K per lake
- The following Lakes have been treated:
 - Lake Dowdy
 - East Lake Trant
 - Lake James
 - Kingston lake
 - Lake Conrad #3
 - Lake Conrad #1



SW-OM1 CANAL MANAGEMENT

- 47 miles of canal & 25 year cycle
- Restore urbanized canals to original drainage capacity and flow rates
- Dedicated funding mechanism to address canals without impacting lake dredging cycles
- Typical projects similar to Windsor Oaks canal projects

Additional Funding Request

Funding Need: \$2 M/Year



SW-OM2 42ND STREET OUTFALL LINING & REPAIR

- Four 2,000 feet 48-inch RCP outfall pipes
- Preliminary CCTV inspection completed in May 2016
- Maintained under USACE Requirements
- South Middle Pipe indicated significant defect
- Detailed inspection of South Middle Pipe scheduled for March 2018

Additional Funding Request

Funding Need: \$4 M FY19



SW-OM3 PINewood ROAD STORMWATER DRAINAGE IMPROVEMENTS

Additional Funding Request

Funding Need: \$1 M FY19

- Existing Culvert showing signs of failure
- Average Daily Traffic (ADT) of approximately 1200 vehicles
- Feasibility analysis and study completed September 2017
- Culvert requires replacement



STORMWATER FY 2019-2024 CLOSING

- Flood Control has become a critical neighborhood issue and is more complicated and expensive
- Stormwater Quality regulations and permitting are more demanding and compliance is mandatory
- More complicated projects and regulations are increasing Operation and Maintenance requirements
- Aging infrastructure is increasing the amount of maintenance needs

DISCUSSION